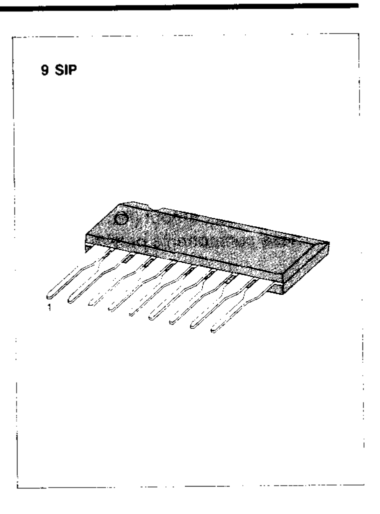
FM STEREO MULTIPLEX DECODER

The KA2263 is a monolithic integrated circuit consisting of a phase locked loop FM stereo demodulator. It was designed for use in car stereo, cassette recorder and other equipment.



FEATURES

- **Wide operating supply voltage range: V_{CC} = 3V ~ 12V**
- **High pilot lamp ON sensitivity.**
  $VL_{(ON)}$ = 9mV (Typ).
- **Built-in stereo indicator lamp drive circuit.**
  Maximum lamp current: 20mA (continuous).
- **High channel separation: CS = 45dB (Typ).**
- **Low distortion**
  THD = 0.08% (Typ) at V_I = 200mV.
- **VCO stop and stereo lamp turn off are simultaneously operated by connected pin 7 to V_{CC}.**
- **Minimum number of external parts required.**

ORDERING INFORMATION

Device	Package	Operating Temperature
KA2263	9 SIP	-20°C ~ +70°C

BLOCK DIAGRAM

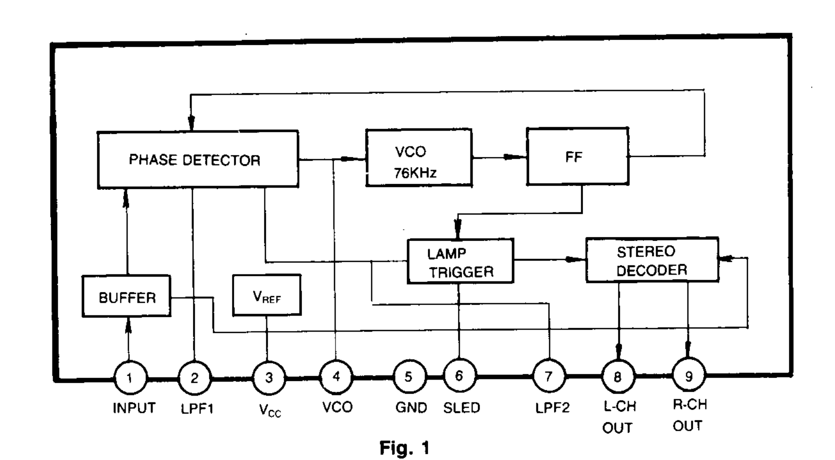


Fig. 1

ABSOLUTE MAXIMUM RATINGS ($T_a = 25°C$)

Characteristic	Symbol	Value	Unit
Supply Voltage	V_{CC}	12	V
Lamp Voltage	V_{LAMP}	16	V
Lamp Current	I_{LAMP} (continuous)	20	mA
	$I_{LAMP(PEAK)}$	40	mA
Power Dissipation	P_D	500*	mW
Operating Temperature	T_{OPR}	−20 ~ +70	°C
Storage Temeprature	T_{STG}	−40 ~ +125	°C

*Derated above $T_a = 25°C$ in the proportion of 4mW/°C

ELECTRICAL CHARACTERISTICS

($T_a = 25°C$, $V_{CC} = 8V$, f=1KHz. unless otherwise specified)

Characteristic		Symbol	Test Conditions	Min	Typ	Max	Unit
Quiescent Circuit Current		I_{CCQ}	$V_I = 0$		11	18	mA
Maximum Input Voltage		$V_{I(MAX)}$	L+R=90%, P=10%, THD=1%		550		mV
Channel Separation		CS	L+R=180mV P=20mV	36	45		dB
Total Harmonic Distortion	Mono	THD 1	V_I=200mV		0.08	0.3	%
	Stereo	THD 2	L+R=180mV P=20mV		0.08		%
Voltage Gain		G_V	V_I=200mV	−2.0	0	+2.0	dB
Channel Balance		C B	V_I=200mV		0	1.5	dB
Lamp ON Level		$VL_{(ON)}$	Pilot only		9	15	mV
Lamp OFF Level		$VL_{(OFF)}$	Pilot only	2	6		mV
Lamp Hysteresis		HY			3		mV
Carrier Leakage	19KHz	V_{LKG}	L+R=180mV		34		dB
	38KHz		P=20mV		42		dB

TEST CIRCUIT

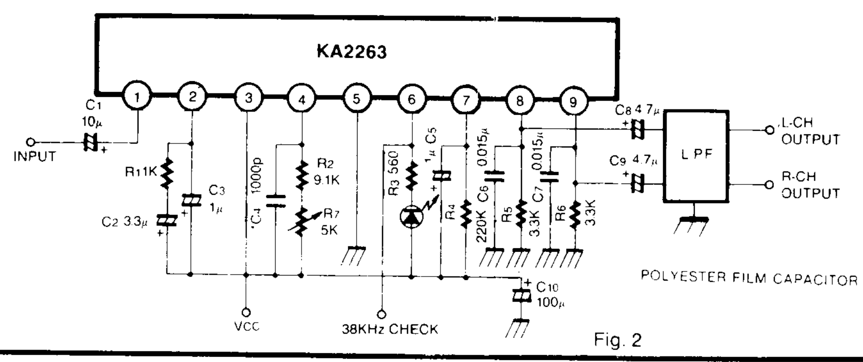


Fig. 2

OUTPUT VOLTAGE
TOTAL HARMONIC DISTORTION —INPUT VOLTAGE

Vcc=8V
f=1KHz
RL=3.3KΩ
Mono

Vo (V), OUTPUT VOLTAGE — THD (%), TOTAL HARMONIC DISTORTION

Vi (mV), INPUT VOLTAGE

SEPARATION
TOTAL HARMONIC DISTORTION —INPUT VOLTAGE

Vcc=8V
f=1KHz
RL=3.3KΩ
L+R=90%
P=10%

THD (%), TOTAL HARMONIC DISTORTION — CS (dB), SEPARATION

Vi (mV), INPUT VOLTAGE

SEPARATION
TOTAL HARMONIC DISTORTION
—FREE RUNNING FREQUENCY

Vcc=8V
f=1KHz
Vi=200mV
L+R=90%
P=10%

CS (dB), SEPARATION — THD (%), TOTAL HARMONIC DISTORTION

fvco (KHz), FREE RUNNING FREQUENCY

SEPARATION
TOTAL HARMONIC DISTORTION—SUPPLY VOLTAGE

f=1KHz
Vi=200mV
RL=3.3KΩ
L+R=90%
P=10%

THD (%), TOTAL HARMONIC DISTORTION — CS (dB), SEPARATION

Vcc (V), SUPPLY VOLTAGE

CAPTURE RANGE

Vcc=6V

Vpilot(mV), PILOT INPUT LEVEL

CR (KHz), CAPTURE RANGE

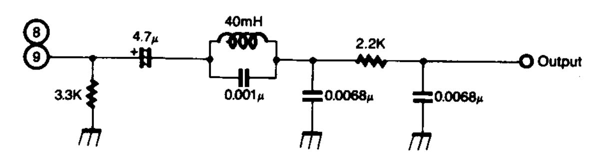
LAMP ON/OFF LEVEL-SUPPLY VOLTAGE

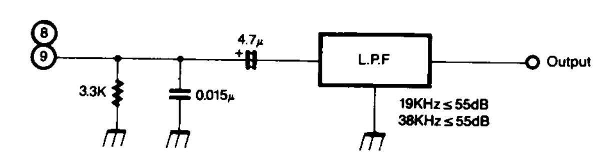
VL (ON)/VL (OFF) (mV), ON/OFF LEVEL

Vcc (V), SUPPLY VOLTAGE

APPLICATION INFORMATION
External Components (Refer to Test Circuit)

1. Input coupling capacitor (C_1)
   The recommended value is 10μF. If smaller values than 10μF are used, low frequency separation will worsen, and if larger values are used, pop noise occurs strongly.
2. Low pass filter (C_2, C_1, R_1)
   This is the low pass filter fr the PLL, which is determined the capture range and THD at low frequency.
3. VCO network (C_4, R_2, R_7)
   The VCO free running frequency is adjusted by connecting a frequency counter to monitor the 38KHz output of Pin 6.
4. Decoder output (Pins 8, 9)
   These components provide R and L channel output load circuits. The recommended circuits as follows:





5. Lamp sensitivity control (R_4)
   Lamp on level can be controlled by this resistor.

